TITLE

Proton-conducting polymer membrane comprising phosphonic acid groups containing polyazoles and the use thereof in fuel cells

CROSS REFERENCE TO RELATED APPLICATIONS

This application is the U.S. National Stage of International Application No. PCT/EP2003/010904, filed October 2, 2003, published in German, and claims priority under 35 U.S.C. §§ 119 or 365 to German Application No. 102 46 373.5, filed October 4, 2002

BACKGROUND OF INVENTION

FIELD OF INVENTION

The present invention relates to a proton-conducting polymer electrolyte membrane which comprises polyazoles containing sulfonic acid groups that and can, owing to its excellent chemical and thermal properties, be used for a variety of purposes and is particularly useful as a polymer electrolyte membrane (PEM) in PEM fuel cells.

DESCRIPTION OF RELATED ART

A fuel cell usually comprises an electrolyte and two electrodes separated by the electrolyte. In the case of a fuel cell, a fuel such as hydrogen gas or a methanol/water mixture is supplied to one of the two electrodes and an oxidant such as oxygen gas or air is supplied to the other electrode and chemical energy from the oxidation of the fuel is in this way converted directly into electric energy. The oxidation reaction forms protons and electrons.

The electrolyte is permeable to hydrogen ions, i.e. protons, but not to reactive fuels such as the hydrogen gas or methanol and the oxygen gas.

A fuel cell generally comprises a plurality of single cells known as membrane-electrode units (MEUs)which each comprise an electrolyte and two electrodes separated by the electrolyte.

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